

**SEASONL INSIDENCE OF SHOOT AND FRUIT BORER
(*LEUCINODES ORBONALIS* GUNE.) ON *KHARIF* SEASON BRINJAL
(*SOLENUM MELONGENA* L.) UNDER FIELD CONDITION**

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ABSTRACT

The present investigation was conducted during July to December 2014 at Central Research Farm, SHIATS, Naini, Allahabad. The data so obtained through observation on various aspects were subjected to statistical analysis. Infestation on fruit start in 38th standard week (September third week) an average population 3.16% infestation. The population of shoot and fruit borer increased and gradually reached its peak level of infestation 42 % at 45 standard week (November 1st week) there after declined trend was observed as temperature decreased. It was found that shoots and fruit borer population increased with increasing maximum temperature and positively correlated with maximum temperature

KEYWORDS: *Leucinodes Orbonalis*, Incidence, Insecticides, Brinjal Shoot and Fruit Borer

INTRODUCTION

Brinjal is the one of the most popular and economically important vegetables among small-scale farmers and it is a source of cash income for resource-poor farmers. India is the second largest producer of vegetable with 13557.8 million tonnes production after China in 2013-14. The existing area under vegetable cultivation in India is around 4.5 million ha. Majority of Indians are vegetarian, with a per capita consumption 135 g per day as against the recommended 300 g per day. It is still very less than recommended diet level (**Dhandapani et.al. 2003**). Like any other crops, brinjal is also attacked by a number of insect pests at various stages of its growth, which affects the cultivation of brinjal and act as a limiting factor in the profitable cultivation of brinjal crop. Among these brinjal shoot and fruit borer, *Leucinodes orbonalis* (Guenée.) is the most destructive and the major limiting factor in quantitative as well as qualitative harvest of brinjal fruits. incidence of BSFB in a particular locality is highly important for development of effective management strategies. The present study was undertaken to know the seasonal variation in the population build up of brinjal shoot and fruit borer and the influence of weather parameters on the trap catch.

METHODS AND MATERIAL

Studies was carried out during July, 2014 to December, 2014 at central research Farm, Sam Higginbottom Institute of Agriculture technology and sciences Deemed to-be University, Allahabad, Uttar Pradesh, India. Randomly five plants from three central rows in each plot were tagged and an observation on population of insect pests of brinjal was recorded in the morning hour at weekly interval right from germination till harvest of crop. The nature and extent of damage caused by various insect pests was also recorded to assess the economic status of the pests. The insect-pests were collected and reared up to adult stage wherever necessary. Adult insect were preserved and identified.

RESULTS AND DISCUSSIONS

Occurrence of shoot and fruit borer in 2014 *rainy* season was commenced from 34th standard week (August fourth week) with an average 2.16 % infestation. The percent infestation on shoot increased and gradually reached peak level of 39.09% infestation at 42st standard week (October third week). Percent infestation on Fruit was commenced from 38th standard week (3rd week of September) with an average 3.26% infestation. The population increased and gradually reached peak level of 32.12% infestation at 45th standard week (November first week). Thereafter, declined trend was observed due to fall of maximum and minimum temperatures as optimum weather condition are decreasing. The probable reason for such finding may be that the occurrence of *Leucinodes orbonalis* might be due to congenial weather factor like temperature, wind velocity, humidity, and sunshine hours prevailed during the investigation. It was observed that the maximum temperature favoured the multiplication of shoot and fruit borer whereas, decline of maximum and minimum temperature lead to decline of the shoot and fruit borer population

Table 1 Seasonal Incidence of Shoot and Fruit Borer of Brinjal During *Kharif* 2014.

Standard week	% Infestation on shoot	% infestation on fruit	Temperature		R. H (%)		Rain fall	Wind velocity	Sunshine
			Max	Min	Morning	Evening	(mm)	(k/hr)	(hr /day)
28	0	0	37.4	27.8	72.85	36	1	3.02	7.42
29	0	0	35.92	28.65	84.42	54.42	14.45	1.23	4.05
30	0	0	33.5	27.27	83.85	63.85	5.37	1.67	5
31	0	0	35.31	27.65	82.28	57.71	8.17	1.57	5.1
32	0	0	33.45	26.82	90.57	62.71	13.8	2.58	1.5
33	0	0	34.05	28.14	87	59.14	3.51	2.8	3.62
34	2.16	0	37.22	28.4	82.71	51.42	0.77	3.45	6.91
35	6.12	0	37.08	29.8	81.28	50.42	0.01	2.12	8.8
36	12.30	0	36.42	26.51	87.28	54.71	1.98	2.56	6.37
37	15.00	0	36.25	25.97	86.42	49.28	2.15	1.49	6.31
38	20.00	3.26	34.88	26.68	87.42	48.57	1.77	0.19	6.7
39	26.53	8.84	36.34	26.71	85.14	48.14	0	1.76	6.87
40	28.88	13.13	37.77	21.42	86.28	45.42	0	1.09	7.34
41	36.92	15.46	38.71	25.74	83.85	50.28	0	1.03	7.65
42	39.09	22.00	32.70	21.12	87	62.28	15.8	1.83	6.17
43	34.46	25.29	33.00	20.14	87.14	54.28	0	0.63	8.45
44	29.12	29.49	32.80	20.31	85.71	50.57	0	0.58	8.25
45	24.42	32.12	33.08	19.46	84.43	48.46	0	0.53	8.32
46	19.64	29.87	30.12	18.65	84.32	48.32	0	0.55	8.12
47	14.21	26.12	29.00	17.32	82.12	49.86	0	0.48	8.20
48	9.56	23.47	26.46	16.00	80.12	46.32	0	0.46	7.85
49	4.31	18.12	25.12	15.98	78.76	44.98	0	0.78	7.96
50	2.86	15.46	22.48	12.32	79.34	43.76	0	0.65	7.4
51	1.90	9.14	21.63	11.34	78.26	42.64	0	0.68	8.00
52	0	4.67	20.12	10.87	76.56	40.34	0	0.62	8.12
1	0	1.23	19.46	9.32	76.48	39.00	0	0.68	8.14
		R	0.012	-0.67	0.342	-0.29	-0.381	-0.632	0.590
		T	0.048	-3.70	1.456	-1.23	-1.649	-3.261	2.922
		Results	NS	S	NS	NS	NS	S	S

Weather Parameter

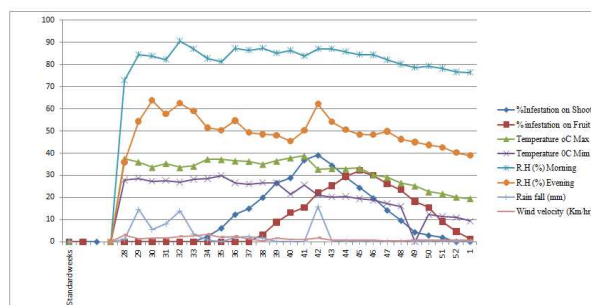


Figure 1: Graphical Representation of Seasonal Incidence of Shoot and Fruit Borer, *L. Orbonalis*

Similar findings have been reported by **Shukla and khatri (2010)** reported adult of shoot and borer increased considerably in the month of Oct. to Nov. and decreased in subsequently weeks of Dec. Maximum shoot and fruit damage was recorded in third weeks of Dec. (**Bhusan et al., (2011)** High humidity was found favorable for borers. **Omprakash and raju (2014)**. When crop was planted during march to September recorded 3.4 – 10.62 % shoot infestation and 33.39 – 61.23 % fruit infestation. (**Tripathi and senapati 1998**). *Leucinodes orbonalis* infested the crop during the end of Aug. (73.33%) which peaked 86.66% in third September with intensity of 2.09% per plant. (**Singh et al., (2000)**).

CONCLUSIONS

From the critical analysis of the present findings it can be concluded that shoot and fruit borer (*Leucinodes orbonalis*) population on brinjal increased with maximum temperature and decreased with decline in maximum temperature during 34th standard week (August fourth week) on shoot and 45th standard week (November 1st week) on fruit in Allahabad.

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